CODING SHUTTLE

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Java is one of the most widely used and versatile programming languages in the world. From desktop applications to web services and mobile apps to enterprise systems, Java powers countless technologies and platforms.

This Java tutorial is designed for beginners who want to build a strong foundation in Java programming. Whether you're completely new to programming or transitioning from another language, this guide covers everything from core concepts to essential object-oriented principles and beyond.

If you're aiming to become a proficient Java developer, follow this structured path to master Java, step by step.

Prerequisites

Before you dive into Java, it's helpful (but not mandatory) to be familiar with:

- **Basic Computer Knowledge**: Understanding how software runs, what an IDE is, etc.

- **Logic Building**: Basic problem-solving and logical thinking.
- **Understanding of Programming Concepts** (optional): Knowing variables, loops, or functions from another language is a bonus.

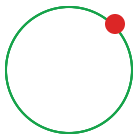
Master These Topics

Once you're ready, follow this structured list to learn Java from the ground up:

1. Introduction to Java
2. Java Fundamentals
3. Java Flow Control
4. Java Arrays
5. Java Methods
6. Java Object-Oriented Programming
7. Java Inner Classes
8. Static and Final Keywords
9. Java Exception Handling
10. Java Generics
11. Java Lambda Expressions
12. Java Collection Framework
13. Java Input/Output Streams
14. Java Reader/Writer

Introduction to Java

1. Introduction to Java



2. Installing JDK on your computer
3. Java Comments

Java Fundamentals

1. Java Variables and Literals
2. Data Types in Java
3. Operators in Java
4. Java Basic Input and Output
5. Java Expressions, Statements and Blocks

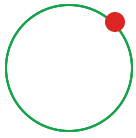
Java Flow Control

1. Java if else statement
2. Java Ternary Operator
3. Java For Loop
4. Java while and do while loop
5. Java continue and break statement
6. Java Switch statement

Java Arrays

1. Java Arrays
2. Java Multidimensional Arrays
3. Java Copy Arrays

Java Methods



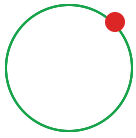
1. Methods in Java
2. Parameter Passing in Java
3. Method Overloading
4. Variable Arguments
5. Java CommandLine Arguments
6. Java Recursive Method

Java Object-Oriented Programming

1. Principles of Object-Oriented Programming
2. Java Class and Objects
3. Java Constructor
4. Encapsulation and Data Hiding
5. Inheritance in Java
6. Constructors in Inheritance
7. this Vs super Keyword
8. Method Overriding
9. Dynamic Method Dispatch
10. Polymorphism using Overloading and Overriding
11. Abstract Classes
12. Interfaces in Java

Java Inner Classes

1. Inner Classes in Java



Static and Final Keywords

1. Static Members and Static Blocks in Java
2. Final Members
3. Singleton Class

Java Exception Handling

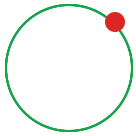
1. What are Exceptions
2. How to handle Exception
3. Try and Catch Block
4. Multiple and Nested Try Catch
5. Class Exception
6. Checked and Unchecked Exceptions
7. Throw Vs Throws
8. Finally Block
9. Try with Resources

Java Generics

1. Introduction to Generics
2. Defining Generic Class
3. Bounds on Generics
4. Java Generic Methods

Java Lambda Expressions

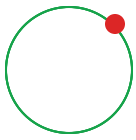
1. Introduction to Lambda Expressions



2. Parameters in Lambda Expressions
3. Capture in Lambda Expression
4. Method References

Java Collection Framework

1. Collections in Java
2. Understanding Collection Interface
3. Understanding List Interface in Java
4. Java ArrayList
5. Java LinkedList
6. Java Vector
7. Java Stack
8. Understanding Queue Interface in Java
9. Java Priority Queue
10. Java ArrayDeque
11. Understanding Set Interface in Java
12. Java HashSet
13. Java LinkedHashSet
14. Java TreeSet
15. Understanding Map Interface in Java
16. Java HashMap
17. Java LinkedHashMap
18. Java TreeMap



19. Comparable Interface in Java
20. Comparator Interface in Java

Java Input/Output Streams

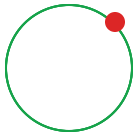
1. What are Streams
2. InputStream and OutputStream Classes
3. FileInputStream and FileOutputStream
4. ByteArrayInputStream and ByteArrayOutputStream
5. ObjectInputStream and ObjectOutputStream
6. BufferedInputStream and BufferedOutputStream
7. Java PrintStream Class

Java Reader/Writer

1. Java File Class
2. Java Reader and Writer Class
3. InputStreamReader and OutputStreamWriter Class
4. FileReader and FileWriter Class
5. BufferedReader and BufferedWriter Class
6. StringReader and StringWriter Class
7. Java PrintWriter Class

Key Features of Java

Java has remained popular for decades for good reason. Here's what makes it special:



- **Platform Independent**: Write once, run anywhere (thanks to the JVM).
- **Object-Oriented**: Promotes clean, reusable, and modular code.
- **Robust and Secure**: Handles exceptions well and includes built-in security features.
- **Rich API**: Offers everything from networking to data structures and file handling.
- **Multithreaded**: Supports concurrent programming for high-performance apps.
- **Vast Community and Ecosystem**: Tons of libraries, frameworks, and learning resources.

If you are interested in building your career in Spring Boot which is one of the popular Java Framework, then checkout the Industry-favourite Spring Boot 0 to 100 course. This course has been recommended by senior SDE and CTOs in their team. And you also learn the best industry practices. Checkout the reviews on Reddit, Quora and Google. Happy Learning!

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*Last updated on **Apr 18, 2025***

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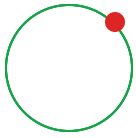
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